SEQUENCE LISTING

<110> Klessig, Daniel F.
Kumar, Dhirenda

<120> NOVEL SALICYLIC ACID-BINDING PROTEIN
ENCODING NUCLEIC ACIDS, SABP2, AND METHODS OF USE THEREOF

<130> 3670-PO2652WO

<140> 10/780,002
<141> 2004-02-17

<150> PCT/US02/26312
<151> 2002-08-16

<150> 60/312,863
<151> 2001-08-16

<160> 58

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 1079
<212> DNA
<213> Nicotiana tabacum

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<211> 260
<212> PRT
<213> Nicotiana tabacum

<400> 2
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Gly Trp Ser Trp Tyr Lys Leu Lys Pro Leu Leu Glu Ala Ala Gly His
20 25 30

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        35                  40                  45
Ile Glu Glu Leu Arg Thr Leu Tyr Asp Tyr Thr Leu Pro Leu Met Glu
    50                  55                  60
Leu Met Glu Ser Leu Ser Ala Asp Glu Lys Val Ile Leu Val Gly His
65                  70                  75                  80
Ser Leu Gly Gly Met Asn Leu Gly Leu Ala Met Glu Lys Tyr Pro Gln
                85                  90                  95
Lys Ile Tyr Ala Ala Val Phe Leu Ala Ala Phe Met Pro Asp Ser Val
            100                 105                 110
His Asn Ser Ser Phe Val Leu Glu Gln Tyr Asn Glu Arg Thr Pro Ala
        115                 120                 125
Glu Asn Trp Leu Asp Thr Gln Phe Leu Pro Tyr Gly Ser Pro Glu Glu
    130                 135                 140
Pro Leu Thr Ser Met Phe Phe Gly Pro Lys Phe Leu Ala His Lys Leu
145                 150                 155                 160
Tyr Gln Leu Cys Ser Pro Glu Asp Leu Ala Leu Ala Ser Ser Leu Val
                165                 170                 175
Arg Pro Ser Ser Leu Phe Met Glu Asp Leu Ser Lys Ala Lys Tyr Phe
            180                 185                 190
Thr Asp Glu Arg Phe Gly Ser Val Lys Arg Val Tyr Ile Val Cys Thr
        195                 200                 205
Glu Asp Lys Gly Ile Pro Glu Glu Phe Gln Arg Trp Gln Ile Asp Asn
    210                 215                 220
Ile Gly Val Thr Glu Ala Ile Glu Ile Lys Gly Ala Asp His Met Ala
225                 230                 235                 240
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His Lys Tyr Asn
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<210> 3
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<212> PRT
<213> Manihot esculenta

<400> 3

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Val Thr Ala Leu Asp Leu Ala Ala Ser Gly Val Asp Pro Arg Gln Ile
        35                  40                  45
Glu Gln Ile Asn Ser Phe Asp Glu Tyr Ser Glu Pro Leu Leu Thr Phe
    50                  55                  60
Met Glu Ser Leu Pro Gln Gly Glu Lys Val Ile Leu Val Gly Glu Ser
65                  70                  75                  80
Cys Gly Gly Leu Asn Ile Ala Ile Ala Ala Asp Lys Tyr Pro Glu Lys
                85                  90                  95
Ile Ala Ala Ala Val Phe Gln Asn Ser Leu Leu Pro Asp Thr Lys His
            100                 105                 110
Lys Pro Ser Tyr Val Val Asp Lys Leu Met Glu Val Phe Pro Asp Trp
        115                 120                 125
Lys Asp Thr Glu Tyr Phe Glu Phe Ser Asn Ser Asn Gly Glu Thr Ile
    130                 135                 140
Thr Gly Met Val Leu Gly Leu Lys Leu Met Arg Glu Asn Leu Tyr Thr
145                 150                 155                 160
Ile Cys Pro Pro Glu Asp Tyr Glu Leu Ala Lys Met Leu Thr Arg Arg
                165                 170                 175
Gly Ser Leu Phe Gln Ser Ile Leu Ala Gln Arg Glu Lys Phe Thr Glu
            180                 185                 190
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Lys Gly Tyr Gly Ser Ile Lys Lys Ile Tyr Val Trp Thr Gly Asp Asp
        195                 200                 205
Lys Ile Phe Leu Pro Glu Phe Gln Leu Trp Gln Ile Glu Asn Tyr Lys
    210                 215                 220
Pro Asp Leu Val Phe Arg Val Met Gly Gly Asp His Lys Leu Gln Leu
225                 230                 235                 240
Thr Lys Thr Asn Glu Ile Ala Gly Ile Leu Gln Lys Val Ala Asp Ile
                245                 250                 255
Tyr Ala
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<210> 4
<211> 257
<212> PRT
<213> Hevea brasiliansis

<400> 4

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Trp Ile Trp His Lys Leu Lys Pro Leu Leu Glu Ala Leu Gly His Lys
            20                  25                  30
Val Thr Ala Leu Asp Leu Ala Ala Ser Gly Val Asp Pro Arg Gln Ile
        35                  40                  45
Glu Glu Ile Gly Ser Phe Asp Glu Tyr Ser Glu Pro Leu Leu Thr Phe
    50                  55                  60
Leu Glu Ala Leu Pro Pro Gly Glu Lys Val Ile Leu Val Gly Glu Ser
65                  70                  75                  80
Cys Gly Gly Leu Asn Ile Ala Ile Ala Ala Asp Lys Tyr Cys Glu Lys
                85                  90                  95
Ile Ala Ala Ala Val Phe His Asn Ser Val Leu Pro Asp Thr Glu His
            100                 105                 110
Cys Pro Ser Tyr Val Val Asp Lys Leu Met Glu Val Phe Pro Asp Trp
        115                 120                 125
Lys Asp Thr Thr Tyr Phe Thr Tyr Thr Lys Asp Gly Lys Glu Ile Thr
    130                 135                 140
Gly Leu Lys Leu Gly Phe Thr Leu Leu Arg Glu Asn Leu Tyr Thr Leu
145                 150                 155                 160
Cys Gly Pro Glu Glu Tyr Glu Leu Ala Lys Met Leu Thr Arg Lys Gly
                165                 170                 175
Ser Leu Phe Gln Asn Ile Leu Ala Lys Arg Pro Phe Phe Thr Lys Glu
            180                 185                 190
Gly Tyr Gly Ser Ile Lys Lys Ile Tyr Val Trp Thr Asp Gln Asp Glu
        195                 200                 205
Ile Phe Leu Pro Glu Phe Gln Leu Trp Gln Ile Glu Asn Tyr Lys Pro
    210                 215                 220
Asp Lys Val Tyr Lys Val Glu Gly Gly Asp His Lys Leu Gln Leu Thr
225                 230                 235                 240
Lys Thr Lys Glu Ile Ala Glu Ile Leu Gln Glu Val Ala Asp Thr Tyr
                245                 250                 255
Asn
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<210> 5
<211> 263
<212> PRT
<213> Arabidopsis thaliana

<400> 5

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Cys His Gly Ala Trp Cys Trp Tyr Lys Val Lys Pro Leu Leu Glu Ala
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            20                  25                  30
Val Gly His Arg Val Thr Ala Val Asp Leu Ala Ala Ser Gly Ile Asp
        35                  40                  45
Thr Thr Arg Ser Ile Thr Asp Ile Pro Thr Cys Glu Gln Tyr Ser Glu
    50                  55                  60
Pro Leu Thr Lys Leu Leu Thr Ser Leu Pro Asn Asp Glu Lys Val Val
65                  70                  75                  80
Leu Val Gly His Ser Phe Gly Gly Leu Asn Leu Ala Ile Ala Met Glu
                85                  90                  95
Lys Phe Pro Glu Lys Ile Ser Val Ala Val Phe Leu Thr Ala Phe Met
            100                 105                 110
Pro Asp Thr Glu His Ser Pro Ser Phe Val Leu Asp Lys Phe Gly Ser
        115                 120                 125
Asn Met Pro Gln Glu Ala Trp Met Gly Thr Glu Phe Glu Pro Tyr Gly
    130                 135                 140
Ser Asp Asn Ser Gly Leu Ser Met Phe Phe Ser Pro Asp Phe Met Lys
145                 150                 155                 160
Leu Gly Leu Tyr Gln Leu Ser Pro Val Glu Asp Leu Glu Leu Gly Leu
                165                 170                 175
Leu Leu Met Arg Pro Gly Ser Leu Phe Ile Asn Asp Leu Ser Lys Met
            180                 185                 190
Lys Asn Phe Ser Asp Glu Gly Tyr Gly Ser Val Pro Arg Val Phe Ile
        195                 200                 205
Val Cys Lys Glu Asp Lys Ala Ile Pro Glu Glu Arg Gln Arg Trp Met
    210                 215                 220
Ile Asp Asn Phe Pro Val Asn Leu Val Met Glu Met Glu Glu Thr Asp
225                 230                 235                 240
His Met Pro Met Phe Cys Lys Pro Gln Gln Leu Ser Asp Tyr Phe Leu
                245                 250                 255
Lys Ile Ala Asp Lys Phe Val
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<210> 6
<211> 268
<212> PRT
<213> Rice

<400> 6

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 1               5                  10                  15
Leu Cys His Gly Ala Trp Cys Trp Tyr Arg Val Val Ala Ala Leu Arg
            20                  25                  30
Ala Ala Gly His Arg Ala Thr Ala Leu Asp Met Ala Ala Ser Gly Ala
        35                  40                  45
His Pro Ala Arg Val Asp Glu Val Gly Thr Phe Glu Glu Tyr Ser Arg
    50                  55                  60
Pro Leu Leu Asp Ala Val Ala Ala Ala Ala Ala Pro Gly Glu Arg Leu
65                  70                  75                  80
Val Leu Val Gly His Ser His Gly Gly Leu Ser Val Ala Leu Ala Met
                85                  90                  95
Glu Arg Phe Pro Asp Lys Val Ala Ala Ala Val Phe Val Ala Ala Ala
            100                 105                 110
Met Pro Cys Val Gly Lys His Met Gly Val Pro Thr Glu Glu Phe Met
        115                 120                 125
Arg Arg Thr Ala Pro Glu Gly Leu Leu Met Asp Cys Glu Met Val Ala
    130                 135                 140
Ile Asn Asn Ser Gln Gly Ser Gly Val Ala Ile Asn Leu Gly Pro Thr
145                 150                 155                 160
Phe Leu Ala Gln Lys Tyr Tyr Gln Gln Ser Pro Ala Glu Asp Leu Ala
                165                 170                 175
Leu Ala Lys Met Leu Val Arg Pro Gly Asn Gln Phe Met Asp Asp Pro
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```
            180                 185                 190
Val Met Lys Asp Glu Ser Leu Leu Thr Asn Gly Asn Tyr Gly Ser Val
        195                 200                 205
Lys Lys Val Tyr Val Ile Ala Lys Ala Asp Ser Ser Ser Thr Glu Glu
    210                 215                 220
Met Gln Arg Trp Met Val Ala Met Ser Pro Gly Thr Asp Val Glu Glu
225                 230                 235                 240
Ile Ala Gly Ala Asp His Ala Val Met Asn Ser Lys Pro Arg Glu Leu
                245                 250                 255
Cys Asp Ile Leu Ile Lys Ile Ala Asn Lys Tyr Glu
            260                 265
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<210> 7
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<221> variation
<222> (0)...(0)
<223> n at position 3 is a or t, n at position 6 is a or g, n at position 9 is c or t, n at position 12 is a or g, n at position 15 is a or c or t, n at position 18 is c or t

<400> 7
acncanttnt tnccntangg 20

<210> 8
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Encoded by primer

<400> 8
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Thr Gln Phe Leu Pro Tyr Gly
 1               5
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<210> 9
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 9
gactcgagtc gacatcga 18

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 10
agagatcagt tgtatttatg 20

<210> 11
<211> 14
<212> PRT
<213> Nicotiana Tabacum

<400> 11
Val Thr Ala Leu Asp Leu Ala Ala Ser Gly Thr Asp Leu Arg
1 5 10

<210> 12
<211> 12
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 1 can be any amino acid.

<400> 12
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1 5 10

<210> 13
<211> 14
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 2 can be any amino acid.

<400> 13
Val Xaa Ala Leu Asp Leu Ala Ala Ser Gly Ile Asp Leu Arg
1 5 10

<210> 14
<211> 15
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 6 can be Tryptophan or Isoleucine.

<400> 14
Thr Pro Ala Glu Asn Xaa Leu Asp Thr Gln Phe Leu Pro Tyr Gly
1 5 10 15

<210> 15
<211> 15
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT

<222> (0)...(0)
<223> Xaa at position 11 can be Phenylalanine or
Glutamic Acid.
Xaa at position 13 can be Methionine or Proline

<400> 15
Thr Pro Ala Glu Asn Thr Leu Asp Thr Gln Xaa Leu Xaa Tyr Gly
1 5 10 15

<210> 16
<211> 14
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 1 can be any amino acid.

<400> 16
Xaa Pro Ala Glu Asn Trp Leu Asp Thr Gln Phe Leu Pro Tyr
1 5 10

<210> 17
<211> 10
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 4 is preferably Glutamic Acid or
Asparagine, but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 6 is preferably Leucine or
Glycine, but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 8 is preferaly Serine or
Threonine, but can be any amino acid.

<400> 17
Tyr Pro Glu Xaa Pro Xaa Thr Xaa Met Phe
1 5 10

<210> 18
<211> 11
<212> PRT
<213> Nicotiana Tabacum

<400> 18
His Tyr Ala Leu Phe Met Glu Asp Leu His Lys
1 5 10

<210> 19
<211> 8
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 2 can be Glutamine or Lysine.

<400> 19
Ala Xaa Tyr Phe Thr Asp Glu Arg
1 5

<210> 20
<211> 6
<212> PRT
<213> Nicotiana Tabacum

<400> 20
Tyr Phe Gln Asp Glu Arg
1 5

<210> 21
<211> 10
<212> PRT
<213> Nicotiana Tabacum

<400> 21
Leu Val Pro Val Asp Val Ser Ile Asp Pro
1 5 10

<210> 22
<211> 10
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 1 is preferably Isoleucine or
Tyrosine, but can be any amino acid.

<400> 22
Xaa His Phe Tyr Ile Tyr Pro Leu Asn Ser
1 5 10

<210> 23
<211> 11
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 1 is preferably Phenylalnine or
Tyrosine but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 2 is preferably Serine or Alanine
but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 8 is preferably Aspartic Acid or

Phenylalanine but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 9 is preferably Glycine or
Phenylalnine but can be any amino acid.

<400> 23
Xaa Xaa Leu Tyr Asp Phe Val Xaa Xaa His Lys
1 5 10

<210> 24
<211> 10
<212> PRT
<213> Nicotiana Tabacum

<400> 24
Tyr Val Thr Pro Glu Asn Asn Leu Tyr Phe
1 5 10

<210> 25
<211> 10
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 1 is preferably Isoleucine or
Serine but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 6 is preferably Serine or
Glutamine but can be any amino acid.

<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 7 is preferably Phenylalnine or
Isoleucine but can be any amino acid.

<400> 25
Xaa Asp Tyr His Ile Xaa Xaa Glu Glu Leu
1 5 10

<210> 26
<211> 11
<212> PRT
<213> Nicotiana Tabacum

<400> 26
Asn Ser Ile Gln Pro Asp Phe Tyr Ala Asn Lys
1 5 10

<210> 27
<211> 12
<212> PRT
<213> Nicotiana Tabacum

<400> 27
Asp Ile Asp Gly Val Pro Glu Thr Leu Asp Leu Arg

1 5 10

<210> 28
<211> 6
<212> PRT
<213> Nicotiana Tabacum

<400> 28
Gly Ala Cys His Gly Gly
1 5

<210> 29
<211> 4
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at position 3 can be any amino acid.

<400> 29
Gly Ser Xaa Gly
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<210> 30
<211> 5
<212> PRT
<213> Nicotiana Tabacum

<220>
<221> VARIANT
<222> (0)...(0)
<223> Xaa at positions 2 and 4 can be any amino acid.

<400> 30
Ala Xaa Ser Xaa Gly
1 5

<210> 31
<211> 6901
<212> DNA
<213> Homo Sapien

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<213> Arabidopsis Thaliana

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<212> DNA
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<211> 1665
<212> DNA
<213> Arabidopsis Thaliana

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<211> 1272
<212> DNA
<213> Arabidopsis Thaliana

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ctttccattt aatcctcaaa acatcttttg tatgcaattc tagaatcaat gatacaagat 1260

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<211> 1371
<212> DNA
<213> Arabidopsis Thaliana

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ttccgacgcc ggacattact accatctctc tcttgctccg gatcctcaac ttcgtctacg 180
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<211> 934
<212> DNA
<213> Arabidopsis Thaliana

<400> 47
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tggtataaac tcaccactct tctcgacgcc gccgggttca aatcaacctc cgtagatctc 180
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<210> 48
<211> 831
<212> DNA
<213> Arabidopsis Thaliana

<400> 48

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<211> 910
<212> DNA
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<400> 50
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<220>
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<400> 51
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<210> 52
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<212> DNA
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<220>
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<400> 57
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<210> 58
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<223> primer

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